



4th Grade: Drips and Drops and Deluges

Course Description: This module is specifically designed to help students understand how water can change the shape of land. We will focus on how water causes erosion and ways to combat excessive soil erosion. We will also look at how fossils are created and buried as a result of sediment deposition.

Day 1: This class will look at how different types of soil are more or less likely to erode and observe the erosion process firsthand. When it rains the water that is not used by plants or dried by the sun then flows through the topsoil downhill into nearby water bodies. As the water flows over the soil, it can slowly start to erode that soil and carry the particles down into water bodies – sometimes polluting it. Loss of plant material by clearcutting trees or by clearing land can result in more extensive erosion that otherwise would have happened had there been root structures holding it in place.

Demonstration: We will use a series of soda bottles set up as little environments to exhibit how exactly erosion happens and how different it looks when it occurs in different types of substrates. The class will separate into three groups and each group will construct their erosion experiment out of the soda bottles. Each group will be given a different substrate or material to observe the effects on erosion – one with only soil, one with soil and detritus that is firmly packed, and one with a thin layer of soil underneath a layer of grass and roots. The same amount of water will be poured over each of the environments and then we will examine which had the greatest amount of erosion by look at the volume of soil mixed in water that pours out the bottom.

Day 2: Sometimes, when sediment settles as a result of erosion on the top of a deceased animal that animal can actually be preserved in that sediment. Bacteria will eat away the dead tissue of the animal and leave behind the skeletal remains. Over time different types of soil and sediment can layer on top of these fossilized remains making it all the more difficult to find them. Sometimes there are locations that, for whatever reason, have a large number of fossils. We will look at how the different layers of sediment can look on top of a fossil bed and talk about how it would be dug through to reach the fossil.

Demonstration: We will have a synthetic fossil bed with us through which students will need to dig and brush to get to the fossils underneath. Upon locating a fossil, a student will remove it from the fossil bed and then give suggestions on how that animal might have died or ended up there. This is an opportunity to let students see what it might be like to be a paleontologist and it is another way for them to visualize erosion.